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Short Communication

COVID-19 vaccine uptake and hesitancy opinions from frontline health care and social care workers: Survey data from 37 countries



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ABSTRACT

Background and aims: Vaccine hesitancy is an ongoing major challenge. We aimed to assess the uptake and hesitancy of the COVID-19 vaccination.

Methods: A short online survey was posted between April 12 to July 31, 2021 targeted at health and social care workers (HCWs) across the globe.

Results: 275 from 37 countries responded. Most were hospital or primary care physicians or nurses, 59% women, aged 18–60 years, and 21% had chronic conditions with most prevalent being diabetes, hypertension, and asthma. We found that most HCWs (93%) had taken or willing to receive the COVID-19 vaccine. While 7% were vaccine hesitant (mainly women aged 30–39 years), respondents main concerns was the safety or potential side effects. Vaccine willing respondents raised concerns of unequal access to the COVID-19 vaccination in some countries, and highlighted that the only solution to overcoming COVID-19 infections was the vaccine booster doses given annually and free mass vaccination.

Conclusions: This study found that the majority of the frontline HCWs are willing to receive the COVID-19 vaccine. Further promotion of the COVID-19 vaccine would reassure and persuade HCWs to become vaccinated.

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To help control the coronavirus disease (COVID-19) pandemic, rapid global efforts have been made to develop vaccines against this disease, and since December 2020 several vaccines have been authorised [1]. Vaccination programmes aim to slow transmission of the virus as well as reducing hospitalisation and death from COVID-19. The timeline for vaccine distribution to reach herd immunity has been estimated to be between late 2021 and 2022, where health care and social care workers (HCWs) have been regarded as a priority group for receiving vaccination [2]. Despite

the availability of vaccines, evidence has shown low and incomplete uptake due to vaccine hesitancy [2,3]. Vaccine hesitancy is when an individual delays in accepting or refuses vaccinations regardless of its availability [4].

We conducted a short online survey in April 12 and July 31, 2021 to evaluate the international opinions of the COVID-19 vaccine uptake and hesitancy among frontline HCWs. The survey link using the REDCap system was disseminated in English through social media (including Twitter, Facebook, and Instagram), online forums, and mailing lists. The posts were sharable to facilitate snowball sampling. Informed consent was obtained and descriptive analyses performed.

275 responses were collected from 37 countries: 58% were from Europe, 24% Asia, 9% North America, 3% Africa, 2% Oceania, 1% South America, and 4% not reported (Table 1). The majority were hospital or primary care physicians or nurses, 59% were women and the age

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Table 1
Characteristics of health care and social care workers who completed the online survey, No.(%).

Characteristics	Overall	Received or willing to receive the vaccine	Vaccine hesitant
Total	275 (100.0)	257 (93.5)	18 (6.6)
Continent			
Europe	160 (58.2)	148 (57.6)	12 (66.7)
Asia	65 (23.6)	62 (24.1)	3 (16.7)
North America	24 (8.7)	23 (9.0)	1 (5.6)
Africa	8 (2.9)	8 (3.1)	0 (0.0)
Oceania	6 (2.2)	4 (1.6)	2 (11.1)
South America	2 (0.7)	2 (0.8)	0 (0.0)
Not reported	10 (3.6)	10 (3.9)	0 (0.0)
Healthcare profession			
Primary care physician	58 (21.1)	56 (21.8)	2 (11.1)
Hospital physician	68 (24.7)	66 (25.7)	2 (11.1)
Nurse	58 (21.1)	53 (20.6)	5 (27.8)
Social worker	10 (3.6)	8 (3.1)	2 (11.1)
Other	81 (29.5)	74 (28.8)	7 (38.9)
Sex			
Men	111 (40.4)	109 (42.4)	2 (11.1)
Women	161 (58.6)	146 (56.8)	15 (83.3)
Prefer not to say	2 (0.7)	1 (0.4)	1 (5.6)
Not reported	1 (0.4)	1 (0.4)	0 (0.0)
Age, years			
18–29	29 (10.6)	25 (9.7)	4 (22.2)
30–39	76 (27.6)	69 (26.9)	7 (38.9)
40–49	92 (33.5)	89 (34.6)	3 (16.7)
50–59	54 (19.6)	51 (19.8)	3 (16.7)
60+	22 (8.0)	21 (8.2)	1 (5.6)
Prefer not to say	2 (0.7)	2 (0.8)	0 (0.0)
Ethnicity			
White	135 (49.1)	123 (47.9)	12 (66.7)
Asian	92 (33.5)	89 (34.6)	3 (16.7)
Black	28 (10.2)	26 (10.1)	2 (11.1)
Other	20 (7.3)	19 (7.4)	1 (5.6)
First Language			
English	152 (55.3)	139 (54.1)	13 (72.2)
Hindi	39 (14.2)	39 (15.2)	0 (0.0)
Other	81 (29.4)	76 (29.5)	5 (27.8)
Not reported	3 (1.1)	3 (1.2)	0 (0.0)
Religion			
Christian	100 (36.4)	90 (35.0)	10 (55.6)
Hindu	68 (24.7)	68 (26.5)	0 (0.0)
Islam	13 (4.7)	9 (3.5)	4 (22.2)
No religion or belief	66 (24.0)	63 (24.5)	3 (16.7)
Prefer not to say	13 (4.7)	12 (4.7)	1 (5.6)
Other	14 (5.1)	14 (5.5)	0 (0.0)
Not reported	1 (0.4)	1 (0.4)	0 (0.0)
Education			
Secondary or high school	18 (6.6)	17 (6.6)	1 (5.6)
Undergraduate degree/professional qualifications	79 (28.7)	72 (28.0)	7 (38.9)
Postgraduate degree	172 (62.6)	164 (63.8)	8 (44.4)
Prefer not to say	6 (2.2)	4 (1.6)	2 (11.1)
Underlying health conditions			
No	216 (78.6)	199 (77.4)	17 (94.4)
Yes	57 (20.7)	56 (21.8)	1 (5.6)
Not reported	2 (0.7)	2 (0.8)	0 (0.0)
Most common conditions			
Diabetes	14 (5.1)	14 (5.4)	0 (0.0)
Asthma	13 (4.7)	13 (5.1)	0 (0.0)
Hypertension	13 (4.7)	13 (5.1)	0 (0.0)
Obesity	6 (2.2)	6 (2.3)	0 (0.0)
Flu vaccination			
2019/20	155 (56.4)	150 (58.4)	5 (27.8)
2020/21	137 (49.8)	133 (51.8)	4 (22.2)
Previously had COVID-19	54 (19.6)	50 (19.5)	4 (22.2)
Is the vaccine available in your country	271 (98.6)	253 (98.4)	18 (100.0)
Participated in COVID-19 vaccine trials	24 (8.7)	24 (9.3)	0 (0.0)

ranged from 18 to over 60 years. 49% were of white ethnicity, 34% Asian, 10% Black, and 7% other. 57 respondents (21%) had underlying health conditions, where the most prevalent chronic conditions were diabetes (5%), hypertension (5%), asthma (5%), and obesity (2%). A fifth had previously been infected with COVID-19, 99% indicated that the COVID-19 vaccine was available within

their country, and 9% had participated in a COVID-19 vaccination trial, [Table 1](#).

Most HCWs (93%, n = 257) had taken the COVID-19 vaccination or had stated willingness to receive the vaccine, [Table 2](#). The most common vaccine received was the Pfizer-BioNTech (50%) and the Oxford-AstraZeneca (Covishield, 33%), which was mainly

Table 2
COVID-19 vaccine responses from health care and social care workers who completed the online survey, No. (%).

Survey questions	Received or willing to receive the vaccine	Vaccine hesitant
Total	257 (93.5)	18 (6.6)
Type of vaccination taken		
Pfizer-BioNTech	128 (49.8)	
Oxford-AstraZeneca (Covishield)	83 (32.3)	
Covaxin	10 (3.9)	
Moderna	9 (3.5)	
Other (Gamaleya, Sinovac, Sinopharm, Janssen Johnson & Johnson)	6 (2.3)	
Not reported	21 (8.2)	
Location of vaccination taken		
In a hospital	173 (67.3)	
Other (vaccination/community centre, pharmacy, government clinic, sports club, shopping complex)	35 (13.6)	
From a General Practice	33 (12.8)	
In a care home	3 (1.2)	
Not reported	13 (5.1)	
Influence of decision		
Personal choice	186 (72.4)	1 (5.6)
Other HCWs	37 (14.4)	2 (11.1)
Other (social responsibility, work, protecting others, evidence based)	16 (6.2)	0 (0.0)
Living with high risk individuals	11 (4.3)	13 (72.2)
The media	7 (2.7)	2 (11.1)
When will the entire population be vaccinated		
In 6 months	65 (25.3)	
In 6–12 months	73 (28.4)	
In 1–2 years	65 (25.3)	
More than 2 years	32 (12.5)	
Do not know	16 (6.2)	
Not reported	6 (2.3)	

administered in a hospital environment (67%). The decision to take the vaccine was primarily influenced by their personal choices (72%) or other HCWs (14%), Table 2. Approximately 54% of those vaccinated or soon to be, perceived the entire population would be vaccinated in the next six to twelve months. In additional comments, vaccine willing respondents reported that the only solution to overcoming COVID-19 infections was the vaccine booster doses given annually, similar to the influenza flu vaccine, and free mass vaccination was urgently required as more variants were emerging around the globe. The respondents also raised concerns that some countries do not have equal access to the COVID-19 vaccine, Table 3.

7% (n = 18) of respondents reported vaccine hesitancy, i.e. offered but refused or not yet offered but will refuse; of these, 15 (83%) were women, mainly aged 30–39 years, and 17 (94%) did not have any underlying health conditions, Table 2. The main reasons selected for not taking the vaccine were: concerns for safety or potential side effects (5%), do not feel personally at risk from

COVID-19 (3%), already had COVID-19 so feel do not need it (2%), and 3% felt the vaccine would not be effective or they would prefer to wait until others had received the vaccine. HCWs also commented that they were reluctant to take the vaccine due to social media scare, not knowing the long-term safety of the vaccines, including infertility, pregnancy and breastfeeding, and concerns of a decrease in protein antibody levels against the infection. Also indicated were distrust towards the vaccine manufacturers, government and private sector institutions. Finally, concerns were raised for ignoring other public health measures such as wearing face masks or social distancing, Table 3.

Overall, our international survey indicated that most HCWs have taken or are willing to receive the COVID-19 vaccine, while only a small proportion were vaccine hesitant. Consistent with previous studies, the main reasons for vaccine hesitancy were concerns for safety or potential side effects [2,5]. We also found that women (15 out of the 18) were more reluctant to take the

Table 3
Summary of additional comments from health care and social care workers who completed the online survey.

Summary of comments	
Received or willing to receive the COVID-19 vaccine	Mass vaccination Free vaccination Annual boosters Vaccine is the only solution More awareness and promotion of the vaccination Concerned about unequal access to vaccination depending on the country We need to vaccinate a huge percentage of the world's population otherwise variants will emerge
COVID-19 vaccine hesitant	Infertility Confirm efficiency Long- term safety of vaccines Pregnancy and breastfeeding More research on the complications of the vaccine Ethnic minorities fear of taking the vaccine Reluctant to take vaccine due to social media scare Not enough information for someone who has had COVID-19 Distrust in manufactures, government and private sector Concerns of drop in protein antibody levels within the blood after certain time Some countries rely too much on vaccines, therefore the death toll is still high as other public health measures are being disregarded

vaccination. A previous review indicated this might be due to concerns of infertility and having severe side effects, which could make them unable to take care of their families [6]. Limitations of this survey was that the workload for HCWs had significantly increased during the pandemic, limiting the number of responses. The survey was written in English, while approximately 45% of the respondents' first language was non-English. We also had a relatively poor representation from Africa and South America countries. Strengths of the study included respondents were from 37 countries.

Many vaccinated healthy and vulnerable people are still currently being infected by COVID-19, and the rates of COVID-19 infection and death are fluctuating across the world [7]. To aid in minimising the rates of infections, the COVID-19 vaccine is recently becoming mandatory [8]. For instance, in England, from 11 November 2021 care home staff are required to be double vaccinated or could face redeployment, and all frontline NHS (National Health Service) staff to be vaccinated by April 2022 [9]. Therefore, we recommend more awareness and further promotion of the COVID-19 vaccine, to persuade more HCWs to become fully vaccinated.

COVID-19 vaccination is one of the most crucial and cost-effective ways of avoiding major disease burden and further long-term complications such as long COVID-19. HCWs across the globe play a vital role in protecting and treating patients. We found that most frontline HCWs are willing to receive the COVID-19 vaccine.

Ethical approval and informed consent

All participants gave informed consent at the start of the survey and no confidential data was collected, as all responses remained completely anonymous. This study has been approved by the University of Leicester College of Life Sciences Committee for Research Ethics Concerning Human Subjects (Non-NHS).

Declaration of competing interest

KK is chair for SAGE subgroup on ethnicity and COVID-19 and an independent member of SAGE. All other authors have no conflict of interest to declare.

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